Not-So-Superfund

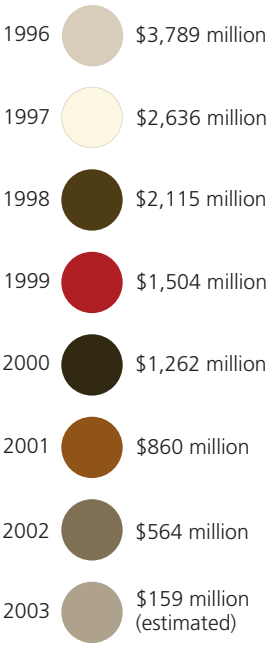
Growing Needs vs. Declining Dollars

Remember Love Canal? This 16-acre landfill in Niagara Falls, New York, was contaminated with more than 21 tons of industrial pollutants dumped there by the Hooker Chemical Company, and later surrounded by residential housing and an elementary school. Love Canal became the poster child for toxic waste sites in the United States during the late 1970s and a symbolic launchpad for Superfund, a federal program initiated in 1980 to ensure the cleanup of such sites using money supplied by polluting industries.

Cut to 2003. Superfund (technically, the Comprehensive Environmental Response, Compensation, and Liability Act) has survived scrutiny, often harsh criticism, and the latest round of reappropriations. A controversial, battered, and often underfunded program, Superfund has, despite its myriad problems, achieved a lasting environmental legacy. But though the program's immediate future now seems secure, the long-term outlook is far from certain.

The Shrinking Trust Fund

Since 1996, the government's reserve for cleaning up Superfund sites has been steadily depleted. The circles at left are proportional to the unappropriated balance of the trust fund at the end of each fiscal year indicated below.



Source: U.S. EPA.

Superfund's Checkered Past

More than 260 of the nation's most toxic sites—many, like Love Canal, loaded with drums oozing industrial chemicals—have been cleaned under the program and removed from the program's National Priorities List (NPL), according to the U.S. Environmental Protection Agency (EPA). An additional 580 sites have been deemed "construction complete" by the EPA. This means that no further on-site cleanup (which often resembles construction or actually involves construction of containment facilities) is necessary, all immediate threats have been eliminated, and all long-term threats are under control. A site may reach construction complete status without all cleanup work being finished, and these sites remain on the NPL.

But despite these achievements, Superfund has long been an easy target among stakeholders who bemoan its perceived heavy-handed bureaucracy. Superfund has been decried as being slowed by its historical baggage, political divisiveness, mandatory business bashing, and legalistic maneuverings.

Underlying most, if not all, of these problems is the cost of cleanups under the program. In the 2001 report *Superfund's Future: What Will It Cost?*, published at the request of Congress by the Washington, D.C., research group Resources for the Future (RFF), cleanups were calculated to take eight years on average from start to finish for relatively simple sites and much longer—perhaps decades—for more complex ones. Site cleanups can range in cost from hundreds of thousands to hundreds

Christopher G. Reuther/EHP

of millions of dollars. Additional costs include legal fees, negotiations, and administrative costs incurred in forcing responsible parties to pay.

Shortfalls in Budgets and in Cleanups

Superfund is now facing an especially difficult challenge: tackling its ongoing workload in the face of a growing gap between the funding Congress provides and that which is needed to tackle its residual workload. According to the Congressional Research Service at the Library of Congress, the Bush administration's fiscal year 2003 Superfund appropriation request of $1.27 billion is roughly $355 million less than the projected need for the year, as calculated in *Superfund's Future*. "The program is clearly at a juncture where they have more work than they can do," says Katherine Probst, a senior fellow at RFF and coauthor of the report.

Some experts say the shortfall is affecting Superfund's twofold mandate: to identify parties responsible for contamination at specific sites and hold them liable for cleanup, and to address "orphaned" sites, where the responsible polluter can't be located or doesn't have the resources to clean up the site. Meanwhile, more than 1,200 sites remain on the NPL, according to Mike Cook, director of the EPA's Office of Emergency and Remedial Response. Many of these are enormous "megasites" for which actual or estimated cleanup costs start at $50 million; the average cost for such megasites is $140 million.

Paralleling the funding gap is a precipitous decline in the number of sites addressed annually under Superfund. The program designated a peak average of 85 sites per year as construction complete from 1997 to 2000. But in 2002, this number fell to just 42, unleashing a wave of criticism toward the EPA and the Bush administration from environmentalists and some members of Congress. Whether the slowdown is linked directly to the funding shortfall is a matter of debate.

EPA officials are reluctant to suggest the two are linked. For instance, Marianne Horinko, assistant administrator in the EPA's Office of Solid Waste and Emergency Response, says the slowdown has occurred mainly because so many sites remaining on the NPL are large and complex. "The easier sites got cleaned up first," she says. "The ones that remain—for instance, mining and sediment sites—are much more challenging and expensive to clean."

Probst acknowledges that the "low-hanging fruit" in terms of site cleanups on the Superfund NPL has probably already been picked. "Many of the early sites had just one cleanup," she explains. "Sites today tend to have multiple cleanups in different areas going on at once." But it is precisely because many remaining sites are so large and complicated that Superfund needs the additional money to carry out its mandate, she adds. According to RFF estimates, annual funding for the Superfund program should be increased to $1.6 billion (adjusted for inflation) every year through 2007.

According to Probst, budget shortages are producing a "crisis of confidence" within the program. "One senses the emergence of a triage mentality," she says. "Existing cleanups seem to be getting funded while new ones are put on hold. Program managers are having to make difficult choices. People are getting nervous."

Other stakeholders blame the budget shortfall for the drop in cleanup completions. This view was recently backed up by an investigation performed by the EPA Office of the Inspector General, released on 25 October 2002, that provides documentation that funding shortages are impacting EPA-led cleanups in a number of areas. The report found a $97 million gap between what was requested and what was actually provided for fiscal year 2002. Moreover, the report cites local EPA officials in suggesting that contamination on at least three of these sites poses ongoing risks to human health and the environment. The report was addressed to James Jeffords (I–Vermont), then chairman of the Senate Committee on Environment and Public Works.

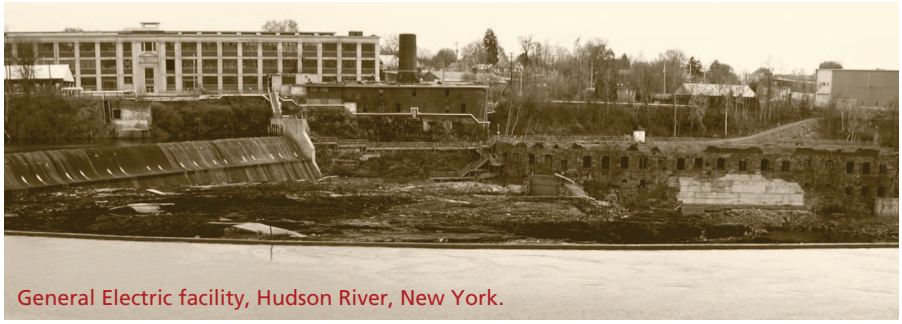
Unmitigated environmental risks may not be the only problem associated with the declining budget, adds Grant Cope, an environmental attorney and Superfund expert formerly with the U.S. Public Interest Research Group and now based in Seattle, Washington. The EPA needs sufficient resources to negotiate with polluting industries, he explains. The Superfund law requires that the EPA allow cleanups to be managed and paid for by those deemed responsible for contamination at specific sites. These entities are typically, but not always, private companies; in the Superfund lexicon they are called "potentially responsible parties" (PRPs). They can be held liable for three times the cost of cleanup if they resist this obligation, forcing the EPA itself to foot the bill, although Probst says this provision has been little used.

Where the EPA does step in to pay for cleanups, the agency can recover its costs from PRPs after the fact. In recent years, more than 70% of new long-term cleanups at nonfederal sites—costing more than $20 billion—were initiated by private parties. "The reaction of PRPs makes perfect sense, given Superfund's settlement process or any potentially costly negotiation process," says Cope. "If polluters know that EPA doesn't have sufficient resources to pay for needed cleanups, they will drag their feet to get a better deal."

Revisiting Polluter-Pays Taxes

With a growing perception that Superfund is in a budget crisis, some stakeholders are insisting on a reinstatement of the industry taxes that sustained the program for much of its history. These taxes were abolished when the law that authorized them expired at the end of 1995. The taxes in question are rooted in Superfund's inception. When the program went into effect on 1 January 1981, the primary funding mechanism was a trust fund fed by a tax on chemical feedstocks. When Superfund was reauthorized in 1986, Congress continued that tax and added two new ones, a petroleum tax and a corporate environmental tax. Industrial fines and penalties, various cost recoveries from polluters, and interest on the balance, in addition to money from the general U.S. Treasury, also contributed to the fund. These taxes represented a fundamental component of the "polluter pays" principle upon which Superfund was founded. However, they were eliminated in 1995 when Congress failed to reach agreement on reinstating them as part of a comprehensive Superfund reauthorization.

Every effort to reauthorize the taxes since 1995 has failed. The Clinton administration routinely requested reinstatement of the taxes in its budget proposals, but its efforts were lukewarm and insufficient to defeat the activities of those who fought against them. Consistent with its disdain for taxes in general, the Bush administration dropped the



General Electric facility, Hudson River, New York.

Luz Claudio

reauthorization request from its proposed budget altogether.

Meanwhile, the trust fund has steadily dwindled. By the end of fiscal year 2003, the balance will be an estimated $159 million, according to EPA spokesman David Ryan. This includes the $36 million balance in the fund from when the taxes were discontinued as well as revenues from sources such as interest on this balance and cost recoveries from PRPs. This is down from a high of $3.8 billion in 1996. Therefore, Congress must increasingly draw off general tax revenues to finance the annual Superfund appropriation. General revenues make up 50% of current funding and may increase to as much as 80% for fiscal year 2004, according to the Congressional Research Service. Eventually, experts say, the fund reserves will hit zero. And when they do, general appropriations will fund Superfund in its entirety.

Cope argues that reinstatement of the Superfund taxes represents the best way to raise the Superfund appropriation to RFF's annual target of $1.6 billion. "If the federal government would make polluters pay their taxes, this would increase available funding for cleanups and free up taxpayer funds to pay for other much-needed programs," he says. Apparently, some members of Congress agree: Both Barbara Boxer (D–California) and Frank Pallone (D–New Jersey) have introduced bills calling for reinstatement of the taxes this year.

By some estimates, Superfund should be funded at $1.6 billion per year through 2007. By the end of fiscal year 2003, the fund will contain about $159 million.

The bottom line, says Probst, is that Superfund appropriations were larger (for instance, the $1.6 billion appropriation in 1991) when the trust fund was full. Her concern is that as the fund dwindles, Superfund appropriations may decline rather than increase in years to come.

Even so, Probst is somewhat reluctant to call for resumption of the Superfund taxes in order to raise additional funds. "I don't know that it makes sense to impose more taxes just to raise three to four hundred million dollars," she says. "I'm not willing to say we shouldn't. But really, that's peanuts in the context of the federal budget. Congress could easily get more than that from general tax revenues."

The Problem of Megasites

The wild cards in the Superfund game are the megasites that increasingly dominate the program's agenda. Most of these sites represent a range of industrial facilities similar to those at lower-cost Superfund sites. Some include sediment-contaminated estuaries and rivers and abandoned mines that can absorb hundreds of millions of dollars in studies and remediation costs.

Interestingly, these sites were hardly considered when Superfund was first authorized more than 20 years ago, says Kerry Kelly, the waste team leader at the American Chemistry Council, an industry trade group based in Arlington, Virginia. In Superfund's early days, she says, the task was fairly straightforward: to address more traditional industrial and municipal landfill sites with abandoned drums and contaminated soils, and to have the remediation paid for by more easily identifiable PRPs.

Today's megasites are vastly different. Sediment sites may require difficult and expensive remediations with highly uncertain outcomes. For example, the EPA is undertaking the largest sediment dredging cleanup in history in the Hudson River. The effort is anticipated to cost nearly half a billion dollars (and is being funded by General Electric, the PRP). However, as sediment dredging is an inexact science, experts do not know if it will achieve the targeted objective of reducing tissue concentrations of polychlorinated biphenyls in fish, the main source of exposure for residential populations [see "The Hudson: A River Runs through an Environmental Controversy," *EHP* 110:A184–A187 (2002)].

Then, too, these sites are often contaminated with "historical" pollution—for example, polychlorinated biphenyls, DDT, and other pollutants discharged by numerous entities including cities, ports, industry, and agriculture over many decades. Identifying PRPs is highly challenging because the contamination has often been contributed by multiple sources over periods of many decades. And, says Cope, "getting them to pay for cleanup without a protracted legal case is very difficult."

Meanwhile, the EPA estimates that up to 10% of all sediments underlying U.S. waters are contaminated with pollutants at concentrations that may have a direct impact on human and ecological health. Mining sites pose some similar problems [see "The Earth's Open Wounds: Abandoned and Orphaned Mines," p. A154 this issue]. Contamination is often extensive, PRPs are absent, and cleanup costs are exorbitant. To provide one example, the EPA has already spent over $250 million on "various cleanup and support activities" at the Bunker Hill Mining and Metallurgic site in Idaho.

Megasites currently make up about 8% of the sites on the NPL; estimating the number of future megasites expected to come under Superfund is difficult to do. State officials have stated that, from their perspective, some of these sites seem to come out of nowhere. The Federal Creosote site in New Jersey, for example, was added to the NPL in 1999, more than 30 years after pollutant releases occurred and 3 years after the pollutants—buried in underlying soils—were first noticed. The expected costs to the EPA at this site, which are external to the costs levied on the PRPs, range from $50 million to $100 million.

Not surprisingly, some stakeholders are now suggesting that Superfund—especially in light of its current budget problems—doesn't have the resources to deal effectively with megasites and may not even be the appropriate vehicle for attempting to do so. "Just a few of these sites could break the bank," Probst says.

Cook, who was a key architect of the original Superfund legislation, says the agency is now grappling with the best way to set priorities for megasites according to the risks they pose to public health. The EPA is also attempting to develop a method for isolating smaller site components under Superfund when the contamination is spread over a large area. These alternatives are currently being explored by a Superfund subcommittee established under the National Advisory Council for Environmental Policy and Technology, which is a multistakeholder advisory committee to the EPA. According to Cook, the subcommittee's recommendations are expected in the next 12–18 months.

Although it's too soon to say, the subcommitttee's conclusions will likely reflect the need for substantial changes in the program. Superfund has been instrumental in cleaning up the environment and protecting public health, but it has done so at tremendous financial cost. Some experts predict that within 10 years Superfund will evolve into a "caretaker program" that limits its activities to a few dozen complex, long-term cleanup projects and that the bulk of the nation's cleanup will be conducted outside Superfund in more community-centered and economics-driven programs such as brownfields programs, voluntary cleanups, and state programs.

Charles W. Schmidt